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ABSTRACT

The purpose of this research was to identify and analyze student writing strategies and procedures. Six male college students, three high scorers and three low scorers on the Differential Aptitude Test, were videotaped while they wrote their regular English class assignments, two summaries and two essays. For each writing session, the students reported their attitudes toward the assignments and their evaluations of the work they did. After all assignments were completed, final interviews elecited information on the students' self concepts, attitudes, family backgrounds, schooling, and language experiences. Among the taxonomies distinguishing the subjects were focuses of attention, kinds of changes made, nervous accompanying behaviors, getting beyond long pauses, spelling strategies, and prewriting strategies. Data from the study provided the following insights: The methodology, getting a videotaped chronology of writing and recording observed behaviors, proved sensitive to many aspects of the composing process. Although no ideal writer emerged, certain traits distinguished effective writers from ineffective ones. As expected, favorable evaluations of compositions correlated with high verbal ability, positive self concept, a history of pleasurable experiences with reading, and determination to do well in school. (RL)

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VIDEOTAPE ANALYSIS OF THE COMPOSING PROCESSES OF SIX MALE COLLEGE FRESHMAN WRITERS

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VIDEOTAPE ANALYSIS OF THE COMPOSING PROCESSES
OF SIX MALE COLLEGE FRESHMAN WRITERS

The purpose of the research reported here was to to identify and analyze the strategies and procedures actually exhibited by a group of student writers as they completed writing tasks of the sort normally required in an academic setting. The study offers a methodology for recording and describing the writing process. The data generated provide insights into the following research questions:

1. Can a test instrument be developed which quantifies the essentially internal process of composing?

2. Can effective writers be distinguished from ineffective writers by means of their composing processes?

3. What test scores, attitudes, and language experiences seem to affect the writing process?

Most research on composing has been based on analyses of finished pieces of writing or on reports of the writing process. Typical is the recent national assessment reported by Mellon in National Assessment and the Teaching of English (1975), for which teams of researchers judged the writing skills of school children on the basis of traits in their finished compositions. Reports of composing, based on interviews and questionnaires, have been published by Cowley (1959), Cooper and Odell (1976), Crabbe (1976) and

others. Analyses of finished compositions, however, do not reveal how or why certain traits came about, and accounts given after the fact may not reveal a completely accurate portrayal of process because writers may be influenced in their recall by their own expectations and those of the researcher.

Except for an isolated study of pausing behaviors by Van Bruggen (1946), few researchers directly observed the writing process until the publication of Janet Emig's The Composing Processes of Twelfth Graders (1971). Emig's method of having subjects compose aloud and videotaping their comments has been variously expanded and refined by other researchers. Graves (1975) devised a system of recording comments and behaviors he observed in second graders as they wrote in their classrooms. Stallard (1974) analyzed revising behaviors of good high school students by viodeotaping them. Pianko (1979) combined observation, selective videotaping, and interviews to describe the writing processes and discover factors influencing the process of composing among seventeen college freshmen.

Rationale

The methodology of this study combines the advantages of many of these earlier studies with the flexibility of an ethnographic approach. Ethnographic research, as explained by Bogdan and Taylor (1975), is a means of uncovering a subject's consistency in performing a complex social task (of which writing is one). The ethnographic researcher's job necessitates the recording of multiple kinds of data

over an extended period of time. Rather than test preconceived hypotheses, ethnographers establish the categories of their findings and quantify their results only after considerable interaction with their subjects. Such extensive interaction also serves to minimize the obtrusiveness of the investigation.

After careful observation the ethnographer constructs taxonomies, which are hierarchically ordered descriptions of procedures observed. From these taxonomies the researcher is able to construct a reliable explanation of the subject's mental and behavioral processes.

An ethnographic approach is particularly appropriate for the study of composing because writing is such a complex behavior that descriptions of it are likely to be partial, depending on the researcher's bias as to what aspects should be identified and measured. Furthermore, subjects are not always articulate about their composing rationale so that questioning protocols sometimes elicit only partial or even misleading information. On the other hand, researchers' interpretations of the total act of composing, even after lengthy observation, are likely to be unquantified and hence subjective.

Ideally, ethnographic research should not disturb the naturalness of the studied phenomenon. In the study of writing, for example, naturalness should include retaining the subject's normal motivation for writing rather than introducing an artificial request for a sample from the researcher.

Videotaping methodology is ideal for ethnographies in that it preserves the early stages of writing (otherwise irretrievable within the finished page) and records layer on layer of inter-related potential contributors to the composing process, including self-concept and values as revealed in conversation, timing, work habits, and focus of attention.

By using videotape to record the writing process, this researcher has preserved all the data that would be recorded on audio tape with the composing-aloud methodology. Yet in addition this study adds the visual dimension that compensates for inadequacies in oral comments which characterized some earlier studies. In analyzing the recorded data the researcher has imitated the ethnographer's methodology of establishing categories and taxonomies according to the subject's view rather than according to pre-conceived hypotheses. In using objective test measures on the other hand, and holistic grading of themes, this researcher sought to tighten the essentially subjective nature of case histories by introducing the objective controls that characterize empirical studies.

Selection of Subjects

Six male college freshmen enrolled in technical programs were selected from composition classes at the Ohio College of Applied Science at the University of Cincinnati on the basis of scores on the Verbal Reasoning subtest of the

Differential Aptitude Test (DAT). Three from regular Freshman English scored above the 85th percentile. Three from Remedial English scored below the 55th percentile. The DAT was selected because it is routinely used by the counseling department at the college where the research took place. Buros (1972) rates the Verbal Reasoning subtest in particular as a good indicator of academic success. Therefore, high scorers (potentially successful students) and low scorers (potentially unsuccessful students) were selected so that they might illustrate the sensitivity of the methodology by exhibiting marked differences in their process styles.

Videotaping Protocol

The six students selected, three high scorers and three low scorers on the DAT, were videotaped in a small, private room while they wrote their regular English class assignments--two summaries and two essays. In other words, the subjects completed writing tasks that they would have had to do anyway. First the research project had been explained to both English classes, Regular Freshman English and Remedial English, from which volunteers were recruited. Each volunteer selected was to be excused from two minor class assignments. When more than half of each class volunteered, those six whose scores grouped at the extreme ends of the distribution had been selected. All were male, two were black.

The subjects signed up to meet for the videotaping sessions at weekly intervals, either completing the compositions at one sitting or during several successive sessions within

the week. The researcher, who was also the subjects' English instructor, was present at all videotaping sessions. Each session began with an informal interview to determine the subject's attitude toward the assignment and the extent of thought or work that had been given to the assignment prior to the videotaping session. Subjects were then directed to explain out loud any decisions they were conscious of making or any rules they were conscious of applying. They were also encouraged to do re-reading aloud. The researcher's role was to remain unobtrusively in the background while the subject wrote, but normal conversation was not curtailed, and the researcher answered factual questions when asked. The camera was trained to record hand movements and the page of writing, but bodies and faces were out of range. Finally, each session concluded with another brief interview to determine the subject's evaluation of what he had just done.

Exit Interviews

At the close of the last videotaping session, interviews with each subject were recorded on audiotape, eliciting information on self-concept, attitudes, family background, schooling, and language experience.

Objective Measures

In addition to the Verbal Reasoning subtest of the DAT, which had been used as a basis for subject selection, each subject and all of their classmates were also given three other objective tests to measure self-concept, attitudes, and language experiences. Test instruments included the Rosenberg

Self Esteem Scale cited by Wylie (1974) as the most reliable of the standardized self-concept measures, an Attitude Inventory designed by Laque and Sherwood (1975) for their doctoral dissertation, and a Language Experience Inventory designed by this researcher. These measures were administered as a part of the regular coursework to all members of both English classes from which the subjects were drawn.

Evaluation of Compositions

The final component of data collection involved evaluation of the finished compositions by three colleagues of the researcher. The unmarked and re-typed compositions written both by the subjects and by their classmates were ranked as good, fair, or poor, and points assigned to the compositions according to the sums of these rankings. (Using Kendall's Tau as a measure of statistical correlation among evaluators, it was found that one evaluator showed no correlation with the other two whereas the other two were positively correlated with each other at the .05 level of significance)

The Reduction of Data

Once the videotapes were completed, they each had to be viewed several times to acquaint the researcher with the kinds of information that had been collected so that categories of measurement for analysis could be determined. Since the writing itself was difficult to read on the television monitor, copies of the pages of writing were used in conjunction with the viewing of the tapes. One composition by each subject was studied in depth.

A tally sheet was devised for measuring countable, observable behaviors. Individual words written in the composition were copied in order as a list in the left columns of the tally sheets and classified as pre-writing, writing, revising, or copying. Pre-writing was defined as outlining or otherwise planning what would be written out later. Writing was defined as the normal production of the written text. Revision was defined as changing what had been written, including deleting, rearranging, substituting, and making proof-reading corrections. Copying was defined as transcribing what had already been written.

Other data recorded on the tally sheets included the re-working of individual letters within the words, unequivocal errors within or immediately after each word, and focus of attention (whether on the subsequent writing, prior notes, re-reading, spelling, punctuation, or other focus--all determined by comments from the subjects or by observations evident in the subjects' behavior). Behaviors or comments were noted on the tally sheet and fully described on separate pages.

On the basis of the tally sheets, it was possible to contrast subjects as to:

1. Proportions of words produced in pre-writing, writing, revising, and copying;

2. Alternations of stages of writing;

3. Percentage of total word production that made up the final copy;

4. Number of words in the final copy;

5. Amount of time taken to write the whole composition;

6. Rate of production (measured in terms of average number and range of words produced within five-minute intervals and number and range of pauses occurring within five-minute intervals); and

7. Percentage of re-worked letters within individual words.

Findings

Objective measures. Class contexts were established for the six subjects by computing their scores in relation to the class distributions. As would be expected, the subjects from the regular Freshman English class scored higher than those from the Remedial English class on both the Verbal Reasoning subtest and the Rosenberg Self Esteem Scale (See Figures 1 and 2 respectively). The three subjects drawn from the regular Freshman English class were among the highest scorers on Verbal Reasoning whereas the three remedial students were spread throughout their class distribution, which was itself significantly lower than the regular English class average. Similarly, the regular Freshman English class and the three subjects drawn from it exhibited a markedly more positive self concept than the Remedial class and its three subjects did, even though the Remedial class average was not much lower.

Insert Figures 1 and 2

The measures of Attitude toward English and Language Experience revealed that the Regular Freshman English class and its subjects tended to prefer reading to writing, think well of themselves as writers, and have more pleasant and numerous language experiences than the Remedial class and its subjects did, both inside and out of school. The Remedial class and its subjects, on the other hand, tended to prefer writing to reading, yet think of themselves as poor writers, having fewer and less pleasant language experiences inside and out of school. The Remedial class reported a higher incidence of TV watching, but also a higher confidence overall in their ability to improve their writing.

Taxonomies:

Strategies used by the six subjects were depicted as taxonomies devised by categorizing specific observed behaviors, labeling the categories, and stratifying the labeled categories into hierarchies. A behavior need only be exhibited once to be listed on a taxonomy as part of a given subject's repertory of strategies.

Pseudonyms were used for each subject on the taxonomies and throughout the study. Subjects are listed on the taxonomies according to the Verbal Reasoning subtest scores with the highest scorer (John) on the left and the lowest scorer (Robert) on the right. Among those taxonomies which distinguished the subjects from each other were:

1) Focuses of Attention (Table 1)

2) Kinds of Changes Made (Table 2)

3) Nervous Accompanying Behaviors (Table 3)

4) Getting Beyond Long Pauses (Table 4)

5) Spelling Strategies (Table 5)

6) Pre-writing Strategies

The Taxonomy of Focuses of Attention (Table 1) shows that the highest test scorers (John and Frank) focused on various aspects of content and organization whereas the lower scoring subjects tended to focus more on mechanical accuracy. The only focus of attention observed across all subjects was attention to correct spelling. The total number of focuses of attention were counted and entered as an aspect of Process Style (see Figures 3 and 4).

Insert Table 1

Unlike the other taxonomies, the Taxonomy of Kinds of Changes Made (Table 2) did not reveal any clear distinctions between high scorers and low scorers, although such distinctions would probably have been noted if separate instances of changes had been tallied rather than giving a subject credit for a strategy when he exhibited it only once. In other words, high scorers made more changes, but not more kinds of changes, than low scorers did. Tim made every possible kind of change whereas Frank and Robert only made minimal and superficial changes.

Insert Table 2

By far the most unexpected taxonomy was the Taxonomy of Nervous Accompanying Behaviors (Table 3). From larger body movements, both relaxed and tense, through equipment manipulation

and pseudo-writing movements, it became evident that the high scorers were more active than the low scorers. All subjects except for Robert shared habits of sweeping the page with the back of the hand, circling the paper before forming letters, and touching up what was formerly written as they re-read it.

Insert Table 3

Once writing was underway, the subjects each experienced "writer's block" at some point during the composing process. Here various combinations of strategies for continuing writing or making a re-entry via another language mode were revealed on the Taxonomy for Getting Beyond Long Pauses (Table 4). All but the lowest scoring subject used various pencil strokes and re-readings as methods of progressing.

Insert Table 4

The Taxonomy of Spelling Strategies (Table 5) is more specific than the other taxonomies in that it registers the exact ways that one focus of attention (spelling) was expressed. In spite of the researcher's availability for spelling help, all subjects used other strategies as well. Only the high scorers looked words up in the dictionary whereas only the low scorers depended on a deliberate sounding out of words.

Insert Table 5

The only taxonomy that depended more on the subject's recall during interviews than on direct observation by the researcher was the Taxonomy of Pre-Writing Strategies (Table 6)

since the writing assignments were made during class meetings well before the videotaping sessions. Therefore, it could be assumed that all subjects at least had thought about the topic before writing about it, except for the lowest scoring subject who professed not to remember the assignment. The contrast between John, the high scorer, and Robert, the low scorer, is dramatic. John was the only subject to begin by making an outline whereas Robert used not one single pre-writing strategy. He simply began writing.

Insert Table 6

A Model of Process Style

In order to display all of the diverse components of the writing process on one page, a model of composing process styles was devised. On it all writers are portrayed as writing from a need, and all processes are portrayed as mentalistic. Both cognitive and affective mental operations contribute. One side of the model portrays conscious observable behaviors and the other portrays unconscious observable behaviors. Solid lines depict the flow of causation and broken lines depict feedback, each channel interconnecting with all the behaviors and outcomes recorded. Figures 3 and 4 represent the composing process styles of the highest scoring and the lowest scoring subjects.

The mental operations of John's process style included twelve kinds of conscious focus of attention, which resulted in various strategies, among them twelve kinds of changes

made in what he wrote. Meanwhile, he displayed nineteen different unconscious nervous accompanying behaviors and varied the pace of his writing between a slow rate of no words at all produced within a five-minute interval and 111 words produced within a five-minute interval. The composing effort was described in terms of percentages. Nearly 50 percent of John's pauses longer than nine seconds occurred in mid-sentence (as opposed to occurring between sentences). Two percent of his words contained evidence of re-worked or written-over letters. Almost 10 percent of John's total word production was devoted to prewriting, 65 percent to writing, 12 percent to revising and 13 percent to copying. John's final draft contained 54 percent of the total number of words he had actually written down to complete his composition. All of this effort required two hours and 45 minutes and produced a 743-word composition.

Insert Figures 3 and 4 plus legend

By contrast Robert's process style reveals lower counts on almost all factors measured. He consciously focused his attention on only three considerations, making only five kinds of changes. Simultaneously he exhibited only one nervous accompanying behavior and registered a very even production rate, producing between 32 and 64 words within five-minute intervals. The description of his composing effort reveals over 50 percent of his pauses occurring in mid-sentence (rather than between sentences) and 57 percent of his words bearing evidence of re-worked or written-over letters within them. With no pre-writing effort and negligible percentages of effort

spent on revising and copying, Robert's final draft represented 99 percent of his total word production. In other words, he wrote only one draft. He spent 39 minutes writing a composition of 292 words.

Evaluation of Compositions

In general, the compositions were ranked by the outside raters in accordance with the scores the subjects received on their Verbal Reasoning subtest, high scores predicting highly ranked compositions. These evaluations are presented in Table 7 and the exceptions to the correlation between test scores and ratings discussed below.

Insert Table 7

Implications

This study provided the following insights into the three original research questions:

1. A total methodology, if not a single test instrument, can be developed to quantify the essentially internal process of composing. The methodology used in this study, including the preservation of the chronological order of writing on videotape and the development of a tally sheet for recording observed behaviors, proved to be sensitive to many aspects of the composing process.

Each subject reported that the videotaping itself had not bothered him after the first few minutes. Because the camera was focused on their pages rather than their faces or bodies,

they may have felt less self-conscious than would otherwise have been the case. At the time of taping the subjects assumed that most of the data collected would be the result of their oral comments, not their behaviors. Each of these factors, plus the realization that these same writing tasks were being completed by all members of each subject's English class, contributed to the naturalness and unobtrusiveness of this methodology for studying composing processes.

The construction of taxonomies, in particular, offers a lucid means of describing and comparing writers' strategies. The organization of multiple, countable behaviors into models of process style offers a visible means of describing differences in production rate, utilization of stages of writing, and kinds of effort expended. The taxonomies and models of process styles together offer concrete illustrations of what actually transpires during composition acts.

The various objective test measures lend validity to the information gleaned from observation and interviews for interpreting the taxonomies and models of process style. Having the compositions evaluated by outside raters served to establish the subjects as successful or unsuccessful writers regardless of the researcher's opinion. Information gathered from the test results was verified, expanded, and interpreted by information gathered through observations and interviews.

2. Effective writers can be distinguished from ineffective ones partially on the basis of their differing composing processes. Although no ideal writer emerged, certain traits distinguished

effective writers from ineffective ones (as measured by the evaluations they received from colleagues of the researcher). The distinguishing traits of effective writers included:

1. Focus on organization and rhetoric instead of mechanical accuracy,

2. Low proportion of re-worked or written-over letters within words,

3. Reliance on spelling strategies other than sounding out words,

4. Ability to shift perspectives so that creating and proofreading became truly separate activities,

5. Reliance on intuition rather than rule applications in proofreading,

6. Understanding of the extent of elaboration expected of academic writing, and

7. Ability to think logically rather than by association.

The two models of process style (Figures 3 and 4) illustrate some differences between effective and ineffective process styles. These models represent two very different personalities, the first a highly disciplined athlete who had achieved academic honors in a rigorous suburban high school, the second an extremely defensive inner city resident with a history of prior failure at another college. The first spent over two hours writing a long, very detailed essay and exhibiting a full range of pre-writing and revising strategies. The second spent less than forty minutes writing a short, generalized essay, seemingly passive in his limited focuses of attention and reluctance even to proofread, merely going through the motions of composing.

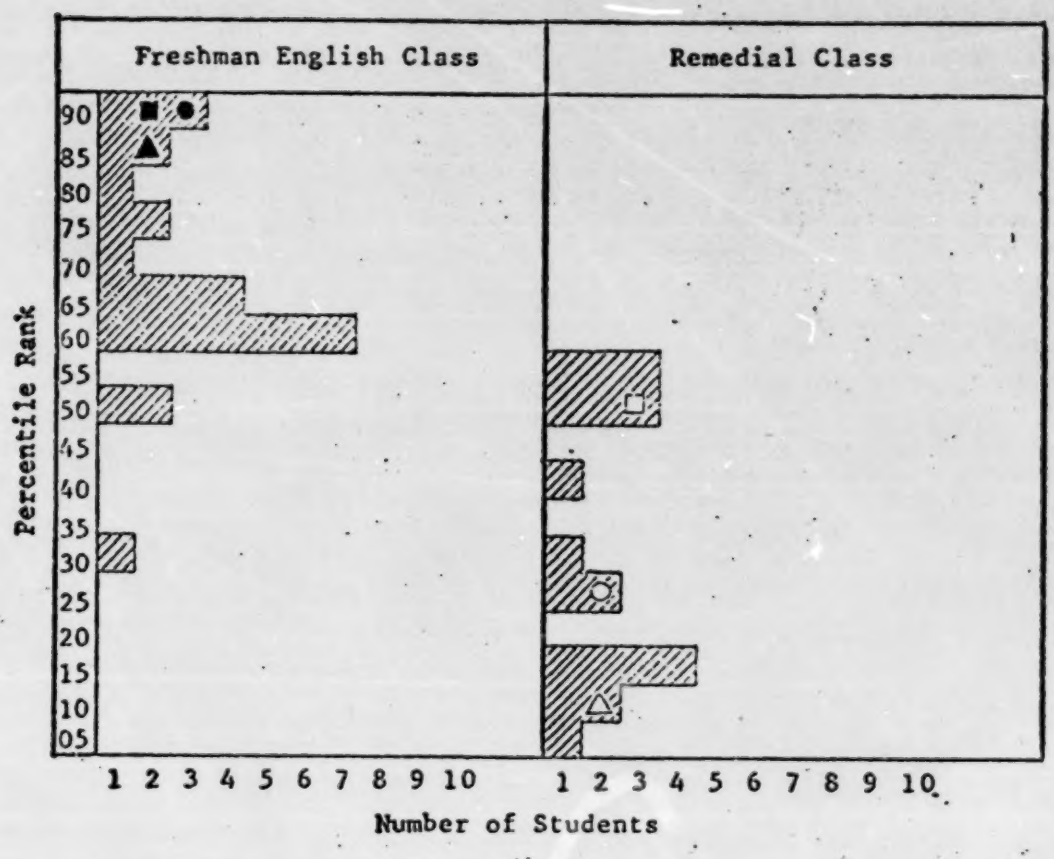
3. Test scores, attitudes, self-concept, and language experiences all contribute to the writing process. As would be expected, favorable evaluations of compositions were accorded to subjects with high verbal ability, positive self-concept, a history of pleasurable experiences with reading, and determination to do well in school.

The cumulative implication of this study, however, was not so much that there were effective and ineffective writers as that all of the subjects tended to be both effective and ineffective. Further, there do not even seem to be effective and ineffective strategies except in a given relationship to other qualities or strategies. For example, it would seem that a broad range of focuses of attention would promote a better composition. To a certain extent this was true, but in the case of Tim, a low scorer, the large number of focuses distracted him from sustained attention to the content of his writing.

Two subjects (Frank and Mike) wrote finished compositions that were evaluated in ways that did not correspond with their test scores in relation to the other subjects. Their evaluations can be explained, however, in terms of whole constellations of interacting traits that determine effectiveness or ineffectiveness for particular individuals. Frank was a high test scorer whose composition was given a relatively low rating. He had written little expository prose before and did not know the extent of elaboration expected. Furthermore, he professed values which minimized the importance of grades and effort, thus excusing himself from careful proofreading or revision. Mike, on the other hand, was a low scorer whose

composition received a high evaluation. He was interested in the topic he wrote about, and he took special pains to organize his thoughts since he was aware that he would leave many mechanical errors in his finished paper. Thus each subject illustrated the individuality inherent in complex activities, such as composing, when self-concept, prior experience, and value systems all contribute to the total task.

Generally, these subjects worked hard, but were neither inspired by the need to resolve a problem through writing, nor open to the satisfactions to be gained from making discoveries during the process of writing. Although many of the behaviors they exhibited seemed immature, particularly their cumulative ability to revise what they had written, they still each did exhibit an integrity in what they did, an individual consistency in process style that echoed the very evident individuality of their separate personalities.

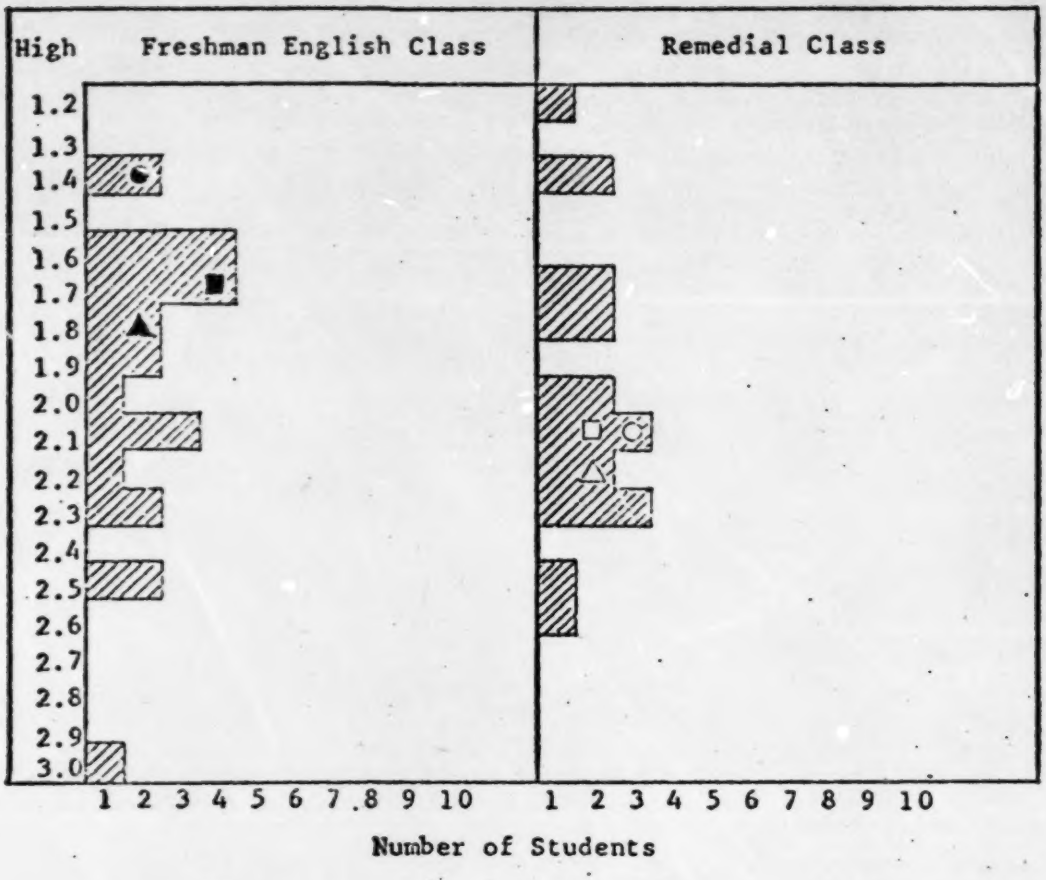


NOTE: The number of students who took the test was 23 from Freshman English and 17 from Remedial English.

*Subjects are symbolized as follows:

High Group	Low Group
John ■	Tim □
Frank ●	Mike ○
Don ▲	Robert △

Figure 1. A Comparison of the Two Classes, with the Positions of Subjects* in Relation to Their Classmates on the Verbal Reasoning Test



NOTE: The number of student who took the test was 24 from Freshman English and 19 from Remedial English.

The mean score for Freshman English was 1.98.

The mean score for Remedial English was 1.94.

*Subjects are symbolized as follows:

High Group	Low Group
John ■	Tim □
Frank ●	Mike ○
Don ▲	Robert △

Figure 2. A Comparison of the Two Classes, with the Positions of Subjects* in Relation to Their Classmates on the Rosenberg Self-Esteem Scale

TABLE 1

TAXONOMY OF FOCUSES OF ATTENTION

			John	Frank	Don	Tim	Mike	Robert
Content	Invention	Facts to be conveyed	X	X			X	
		Notes	X	X				
		Related anecdotes			X	X	X	X
	Essay form	Thesis	X	X	X	X	X	
		Introductory paragraph	X	X	X			
		Concluding paragraph	X	X	X		X	
		Title	X					X
	Organization	Paragraphing	X	X		X	X	
		Order		X		X	X	
		Unity, coherence	X	X		X		
		Transition		X				
Mechanics	Sentence construction			X	X	X		
	Punctuation	Quotation marks	X					
		Comma placement		X				
		Capitalization			X	X		
	Right word	Subject-verb agreement			X			
		Tense			X	X		
		Diction		X		X	X	
		Spelling	X	X	X	X	X	X

TABLE 2

Taxonomy of Kinds of Changes Made

			John	Frank	Don	Tim	Mike	Robert
Proofreading	Spelling	Corrects misspelled word	X		X	X	X	X
		Adds word endings			X	X	X	X
		Writes out abbreviations	X		X	X		
	Punctuation	Deletes punctuation				X		
		Adds punctuation	X	X	X	X		X
	Capitalization	Converts lower case			X	X		
		Capitals to lower case			X	X		
	Deletions	Adds left-out words		X	X	X		X
		Re-writes crossed out words		X	X	X		
Revising	Diction	Selects different modals				X		
		Substitutes equivalent words	X	X	X	X	X	X
	Sentence Structure	Changes order of clauses, phrases	X		X	X	X	
		Adds words to enhance parallel structure	X			X		
		Takes clauses, phrases out of dialect				X		
	Rhetorical Appeal	Adds details	X		X	X	X	
		Expands without saying more	X		X	X	X	
		Adds transitions	X		X	X		
	Re-arrangement	Changes paragraph order	X		X	X	X	
		Re-groups information into different paragraphs	X		X	X		
Starting Over	Writing	Composes new paragraphs	X		X	X	X	
	Making new mistakes	Copies first draft wrong			X	X	X	

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TABLE 3

TAXONOMY OF NERVOUS ACCOMPANYING BEHAVIORS

			John	Frank	Don	Tim	Mike	Robert
Body Motions	Relaxed	Stretching	X	X				
		Sighing			X	X		
		Lying down			X			
		Singing				X		
	Tense	Making a fist	X					
		Popping knuckles	X					
		Scratching, rubbing	X	X				
		Thumping	X	X	X			
		Checking time	X		X	X	X	
		Bobbing	X					
Equipment Motions	Pen-related	Clicking	X	X	X			
		Swinging	X	X	X			
		Twirling, rubbing pen	X	X	X			
		Putting pen in mouth	X					
	Paper-related	Sweeping	X	X	X	X	X	
		Straightening	X	X	X		X	
		Riffling pages	X		X	X		
		Leafing corners	X	X	X			
Pseudo-writing Motions	Getting started	Doodling	X					
		Circling	X	X	X	X	X	
		Destroying old page						X
	Finishing up	Exaggerating dots & T's			X			
		Slamming pen down	X		X			
		Touching up	X	X	X	X	X	

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TABLE 4

TAXONOMY FOR GETTING BEYOND LONG PAUSES

			John	Frank	Don	Tim	Mike	Robert
Keep Writing	Keeping pen in motion	Doodling	X					
		Making circles	X	X	X	X	X	
		Touching up	X	X	X	X	X	
	Skipping	Ahead on page			X			
		Ahead to new page	X		X			
		Back to previous writing	X		X	X		
	Starting over	After destroying paper	X		X			X
		Expanding what already written	X		X		X	
	Ignoring obstacles	Letting awkward sentences stand		X	X	X		
		Marking places for later				X	X	
Immerse self in content	Making entry via another language mode	Reviewing notes	X	X				
		Re-reading what previously written	X	X	X	X	X	
		Talking				X	X	

TABLE 5

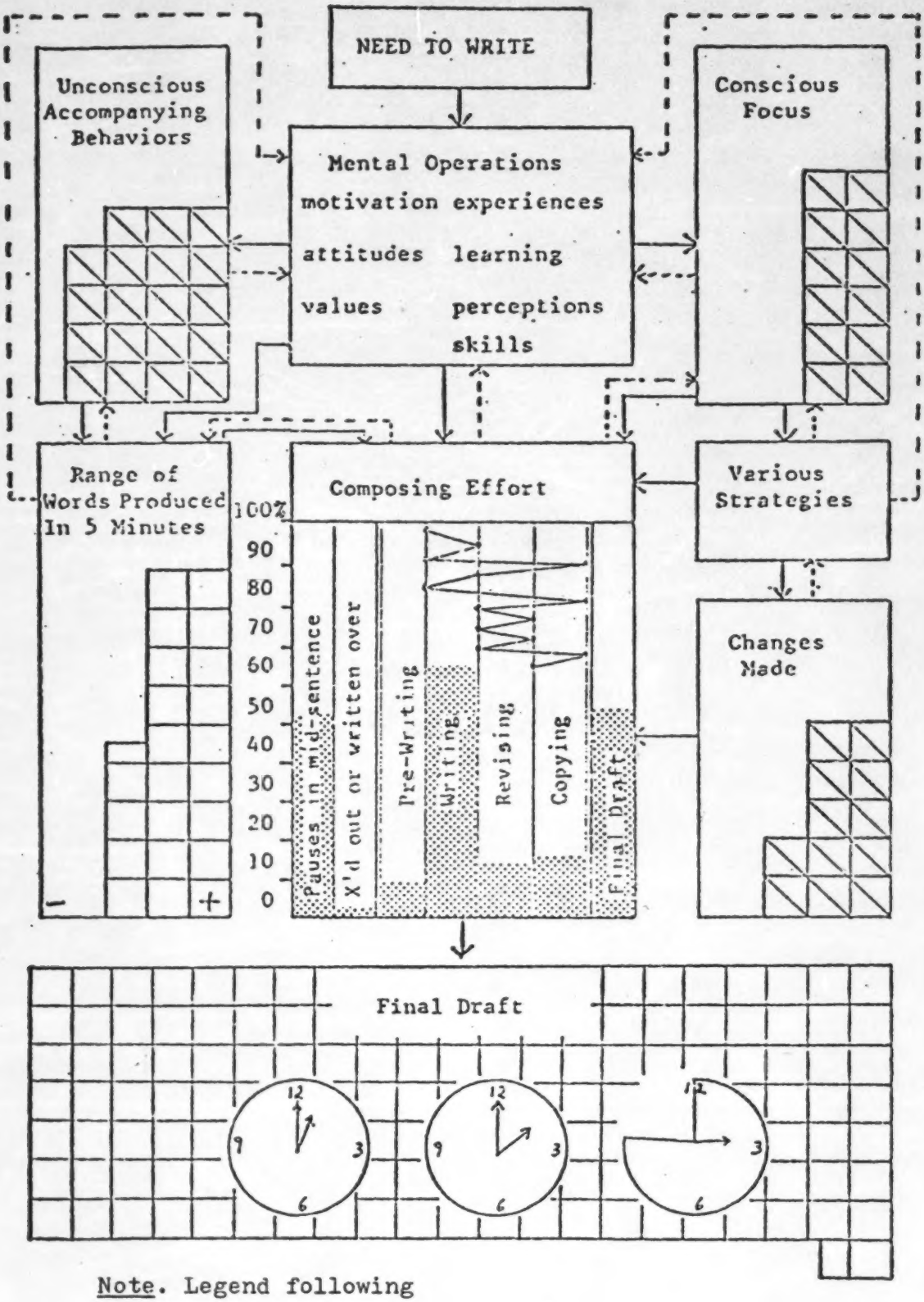
TAXONOMY OF SPELLING STRATEGIES

		John	Frank	Don	Tim	Mike	Robert
External Input	Looking it up	X		X			
	Asking the Investigator	X		X	X	X	X
Combination External & Internal Input	Writing it on scratch paper		X		X		
Internal Input	Sounding it out				X	X	X
	Learned responses	X	X	X	X	X	X

TABLE 6

TAXONOMY OF PRE-WRITING STRATEGIES

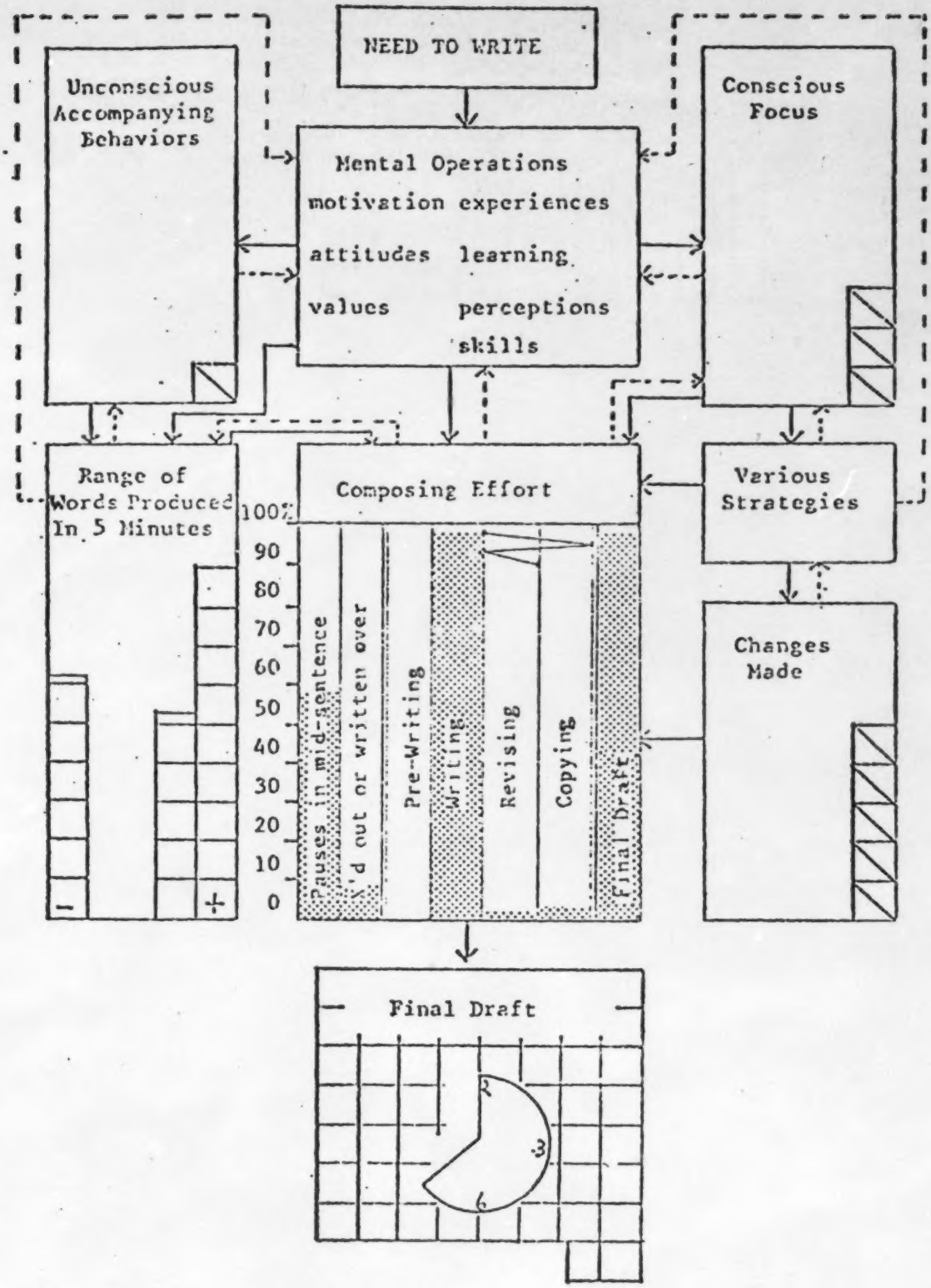
		John	Frank	Don	Tim	Mike	Robert
Incubating	Thinking about the topic	X	X	X	X	X	
	Looking up information	X	X		X		
Deciding what to do	Planning a thesis	X	X		X		
	Making a mental outline	X	X				
Actual pre-writing	Writing a list or outline	X					
	Writing out the thesis	X					
Planning once things are in progress	Doing written lists	X					
	Making verbal lists					X	



Note. Legend following

Figure 3. John's Process Style

BEST AVAILABLE COPY



Note. Legend following

Figure 4. Robert's Process Style

BEST AVAILABLE COPY

Legend for Process Styles

Each square represents 1 type or kind

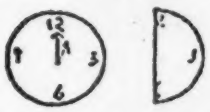
Each square represent 10%

Each square represents 5 words

Causation Channel

Feedback Loop

Alternation of Stages of Writing
(Regardless of amount of work done in each)

 Hour or portions of hours taken for composing.

Most words produced in 5 minutes

 Least words produced in 5 minutes

NOTE: "Final Draft" column indicates percentages of total composing effort that went into the final draft.

TABLE 7

CUMULATIVE SCORES ASSIGNED BY

EVALUATORS ON ESSAYS ABOUT CARS

Subject	Score
John	4
Frank	6
Don	7
Tim	9
Mike	6
Robert	9

Note: 3 is the highest possible score.

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